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TITLE : LITHIUM MANGANESE-BASED OXIDE,  
HAVING SPINEL STRUCTURE AND  
CONTAINING ANOTHER KIND OF  
ELEMENT, ITS PRODUCTION AND  
USE THEREOF

ABSTRACT : PROBLEM TO BE SOLVED: To suppress the elution of Mn in an organic electrolytic solution of a lithium secondary battery by using a lithium manganese-based oxide having a spinel structure of a specific chemical composition containing at least another kind of element other than Li and Mn as a material of a positive electrode.

SOLUTION: This lithium manganese-based oxide having a spinel structure is represented by the formula [the interior of { } denotes the position of an oxygen tetrahedron in the structure; the interior of [ ] denotes the position of an oxygen octahedron in the structure;  $0 < (x) \leq 0.33$ ;  $0 < (y) \leq 1$ ;  $-0.5 < (d) < 0.8$ ] and contains at least another element (M) other than Li and Mn. The crystal structure is a cubic crystal and the lattice constant (a) is  $\geq 8.19$  and  $\leq 8.24$  Å. The other element M is selected from Be, Mg, Ca, Y, Ti, V, Cr, Fe, Cu, B, Al, Si, Pb, P and the like. Furthermore, the oxide preferably has 1-50 µm average agglomerated particle diameter, 0.1-5 m<sup>2</sup>/g BET specific surface area and  $\leq 3$  µm average primary particle diameter. The lithium manganese-based oxide containing the other element is produced by mixing respective compounds of the Mn, Li and the other element and baking the resultant mixture.

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